

Title (en)

Press working method with a punch step and press working apparatus with a movable punch

Title (de)

Pressverfahren mit einem Stanzstufe und Pressvorrichtung mit einem bewegbaren Stanz

Title (fr)

Méthode de pressage avec une étape de poinçonnage et appareil de pressage avec un poinçon mobile

Publication

EP 1844871 B1 20100224 (EN)

Application

EP 07106021 A 20070412

Priority

- JP 2006112242 A 20060414
- JP 2006112256 A 20060414

Abstract (en)

[origin: EP1844871A2] In a press working apparatus 10, while a servo motor 24 is acting, an upper die 38 is made to come close to a lower die 52 and press working of the first time is conducted on a steel plate 12. A slider 32 is raised to a movable punch preparation position. A movable punch 90 is protruded from a die face 38a of the upper die 38 by width H and locked by a mechanical lock 94. The upper die 38 is made to come close to the lower die 52 again and the steel plate 12 is pushed with the upper die 38 and at the same time an additional worked portion 12a is pushed and deformed with the movable punch 90 so as to conduct press working of the second time. After the movable punch 90 has been retracted, the slider 32 is raised.

IPC 8 full level

B21D 22/06 (2006.01); **B21D 22/02** (2006.01); **B21D 24/02** (2006.01); **B21D 24/04** (2006.01); **B21D 24/10** (2006.01); **B30B 15/14** (2006.01)

CPC (source: EP US)

B21D 22/22 (2013.01 - EP US); **B21D 24/14** (2013.01 - EP US); **B21D 37/08** (2013.01 - EP US); **B30B 15/148** (2013.01 - EP US)

Cited by

CN102107544A; EP2604356A1; DE102008062470A1; FR3064935A1; CN113680900A; CN107497909A; IT201700081350A1; DE102010060103A1; DE102010060103B4; EP2712688A1; US9346095B2; US9283611B2; WO2008092486A1

Designated contracting state (EPC)

DE GB

DOCDB simple family (publication)

EP 1844871 A2 20071017; **EP 1844871 A3 20071226**; **EP 1844871 B1 20100224**; CN 101817043 A 20100901; DE 602007004896 D1 20100408; DE 602007011505 D1 20110203; EP 2165781 A1 20100324; EP 2165781 A8 20100602; EP 2165781 B1 20101222; US 2007240479 A1 20071018; US 2010275670 A1 20101104; US 7765848 B2 20100803; US 7963141 B2 20110621

DOCDB simple family (application)

EP 07106021 A 20070412; CN 201010145719 A 20070413; DE 602007004896 T 20070412; DE 602007011505 T 20070412; EP 10150099 A 20070412; US 73342707 A 20070410; US 83335710 A 20100709